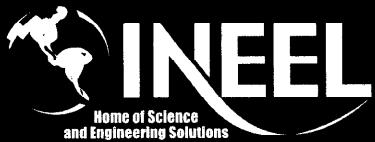


DOE/ID-10838
Revision 0
May 2001



**U.S. Department of Energy
Idaho Operations Office**

Remedial Design/Remedial Action Work Plan for Operable Unit 3-13, Group 6, Buried Gas Cylinders



Idaho National Engineering and Environmental Laboratory

**Remedial Design/Remedial Action
Work Plan for Operable Unit 3-3, Group 6,
Buried Gas Cylinders**

Published May 2001

**Prepared for the
U.S. Department of Energy
Idaho Operations Office**

ABSTRACT

This *Remedial Design/Remedial Action Work Plan* outlines the removal, characterization, treatment, and/or disposal of buried gas cylinders (Group 6) for Waste Area Group 3, Operable Unit 3-13, at the Idaho National Engineering and Environmental Laboratory. This project complies with required actions identified in the *Waste Area Group 3 Record of Decision* and by the *Federal Facility Agreement/Consent Order*.

The buried gas cylinders sites of concern include CPP-84 and CPP-94. CPP-84 contains between 40 and 100 construction gas cylinders that have been buried below the ground surface. After excavation, these cylinders will be segregated using flammability as the criteria. Sampling of these cylinders is required to identify on-Site or off-Site treatment options. Soil sampling will be performed to verify that contaminants have not been released to the surrounding environment. The sites will be backfilled and revegetated as required. CPP-94 consisted of six hydrofluoric acid cylinders. Five of these cylinders were empty and one cylinder had residual volumes of product. All cylinders at CPP-94 have been removed or are stored in compliant storage. The only field activities required to complete the removal action at CPP-94 are soil sampling and site reclamation.

This *Remedial Design/Remedial Action Work Plan*, together with the *Waste Management Plan* and the *Data Management Plan* constitute the primary documents to support the removal action. These plans provide guidance on the safe and compliant excavation, segregation, characterization, treatment, disposal, verification, and reporting requirements.

CONTENTS

ABSTRACT	iii
ACRONYMS.....	xi
1. INTRODUCTION.....	1-1
1.1 Background.....	1-2
1.2 Selected Remedy.....	1-2
1.3 Scope	1-2
1.3.1 Site CPP-84 Scope.....	1-2
1.3.2 Site CPP-94 Scope.....	1-5
2. ORGANIZATION	2-1
2.1 Field Team.....	2-1
2.1.1 Environmental Restoration Field Project Personnel	2-1
2.1.2 ER Field Construction Coordinator	2-1
2.1.3 ER Field Team Leader	2-1
2.1.4 ER Health and Safety Officer	2-3
2.1.5 Occasional Workers.....	2-3
2.1.6 Visitors.....	2-3
2.2 CFA Support Staff	2-3
2.2.1 CFA Site Area Director	2-3
2.2.2 Radiological Engineer	2-4
2.2.3 Radiological Control Technician	2-4
2.3 Non-Field Support Staff	2-4
2.3.1 Environmental Restoration Director	2-4
2.3.2 ER SH&QA Manager	2-5
2.3.3 ER WAG 3 Manager	2-5
2.3.4 ER Group 6 Project Manager	2-6
2.3.5 ER WAG 3 SH&QA Point of Contact.....	2-6
2.3.6 ER Environmental Coordinator	2-6
2.3.7 ER Quality Engineer.....	2-6
2.3.8 Waste Generator Services	2-6
3. DESIGN CRITERIA.....	3-1
3.1 Project Description	3-1
3.1.1 Sampling Methods.....	3-2
3.1.2 Treatment Methods.....	3-3

3.1.3	Disposal Methods	3-3	—
3.2	Data Quality Objectives.....	3-3	—
3.2.1	DQOs to Support Cylinder Removal	3-4	—
3.2.2	DQOs to Support Post-Removal Soil Sampling	3-4	—
3.3	Performance Standards	3-4	—
3.3.1	Remedial Action Objectives	3-4	—
3.3.2	Remediation Goals.....	3-7	—
3.4	Technical Factors of Importance in Design and Remediation.....	3-7	—
3.4.1	Number of Cylinders	3-7	—
3.4.2	Cylinder Content.....	3-7	—
3.4.3	Cylinder Integrity.....	3-7	—
4.	DESIGN BASIS.....	4-1	—
4.1	Status of Record of Decision Assumptions	4-1	—
4.2	Summary of Record of Decision Assumptions Specific to Group 6, Buried Gas Cylinders	4-2	—
4.3	Summary of Detailed Justification of Design Assumptions	4-3	—
4.4	Detailed Evaluation of How ARARs Will Be Met.....	4-4	—
4.5	Plans for Minimizing Environmental and Public Impacts	4-8	—
5.	REMEDIAL DESIGN.....	5-1	—
5.1	Mobilization.....	5-1	—
5.2	Excavation Operations.....	5-2	—
5.3	Cylinder Segregation and Staging	5-2	—
5.4	Cylinder Sampling	5-4	—
5.5	Onsite Laboratory Analysis	5-4	—
5.6	Cylinder Treatment	5-5	—
5.7	Cylinder Disposal	5-6	—
5.8	Post-Removal Sampling	5-6	—
6.	REMEDIAL ACTION WORK PLAN ELEMENTS.....	6-1	—
6.1	Relevant Changes to the RD/RA Statement of Work.....	6-1	—

6.2	Emergency Response Plan.....	6-1
6.3	INEEL Environmental Documentation	6-1
6.4	Hazard Classification/Auditable Safety Analysis and Unreviewed Safety Question Review	6-1
6.5	Evaluation of Remedial Action Against Performance Measurement Points	6-2
6.6	Field Oversight and Construction Management	6-2
6.7	Project Cost Estimate.....	6-2
6.8	Project Schedule	6-2
6.9	Remedial Action Reporting	6-3
6.10	Health and Safety Plan.....	6-3
6.11	Field Sampling Plan.....	6-4
6.12	Waste Management Plan	6-4
6.13	Data Management Plan.....	6-5
6.14	Quality Assurance/Quality Control	6-6
6.15	Decontamination.....	6-6
6.16	Operations and Maintenance	6-6
6.17	Spill Prevention/Response Plan.....	6-6
6.18	Premobilization.....	6-6
6.19	Mobilization.....	6-7
6.20	Excavation Operations.....	6-8
	6.20.1 Objectives and Approach.....	6-8
	6.20.2 Safe to Operate Task.....	6-10
	6.20.3 Site Setup Task	6-22
	6.20.4 Excavation Task.....	6-23
7.	SAMPLING, TREATMENT, AND DISPOSAL.....	7-1
7.1	Objectives and Approach.....	7-1
7.2	Cylinder Sampling	7-1
	7.2.1 Valve Sampling Station (VSS)	7-1
	7.2.2 Cylinder Recovery Vessel (CRV)	7-3

7.2.3	Sample Analysis	7-3
7.2.4	Fourier Transform Infrared Spectrometer.....	7-5
7.2.5	Mass Spectrometer (MS)	7-5
7.3	Treatment of Cylinder Contents	7-6
7.3.1	Treatment of Anticipated Gases	7-6
7.3.2	Treatment of Non-Anticipated Gases	7-7
7.4	Post-Removal Characterization Activities.....	7-8
7.4.1	Sampling Design for Excavated Areas	7-9
7.5	Disposal	7-11
7.6	Backfilling	7-11
8.	FIELD DOCUMENTATION	8-1
8.1	Audits.....	8-1
8.2	Logbooks	8-1
8.2.1	Field Team Leader's Daily Logbook.....	8-1
8.2.2	Sample Logbooks	8-2
8.2.3	Field Instrument Calibration/Standardization Logbook	8-2
8.3	Data Management and Inventory Control	8-2
8.3.1	Data Management.....	8-2
8.3.2	Inventory Control.....	8-2
8.4	Reports.....	8-3
8.4.1	Daily Reports	8-3
8.4.2	Weekly Reports	8-3
8.4.3	Remedial Action (RA) Report	8-3
8.5	Records and Reference Documents	8-4
8.6	Training Records/Documentation.....	8-4
9.	REFERENCES.....	9-1

Appendix A—Project Costs

Appendix B—Project Schedule

Appendix C—Pre-Final Inspection Checklist

Appendix D—CPP-94 Accelerated Remedial Action Scope of Work

Attachment 1—Preliminary Characterization Plan for OU 3-13, Group 6, RD/RA
Buried Gas Cylinders Sites: CPP-84 and CPP-94

Attachment 2—Health and Safety Plan for WAG 3, OU 3-13 Group 6 Buried Gas Cylinders

Attachment 3—Hazard Classification for Remediation of OU 3-13 Group 6 RD/RA
Buried Gas Cylinder Sites: CPP-84 and CPP-94

Attachment 4—Waste Management Plan for Operable Unit 3-13, Group 6, Buried Gas Cylinder

Attachment 5—Data Management Plan for Field and Nonchemical Data from the Operable Unit 3-13, Group 6, Buried Gas Cylinder

FIGURES

1-1.	INEEL site map showing locations of facilities.....	1-3
1-2.	INTEC area map showing locations of Sites CPP-84 and CPP-94.....	1-4
2-1.	Field organization chart for the WAG 3, OU 3-13, Group 6, Buried Gas Cylinders.....	2-2
3-1.	Factors that support contingency planning.....	3-2
3-2.	Example of damaged valve cap.....	3-8
3-3.	Example of cylinder overpacks.....	3-8
5-1.	Description of remedial action.....	5-1
5-2.	Proposed site layout.....	5-3
5-3.	Cylinder grappling device.....	5-4
5-4.	Typical cylinder rack.....	5-5
5-5.	Schematic of the VSS.....	5-5
5-6.	Photograph of CRV.....	5-5
5-7.	Typical cylinder overpack.....	5-6
5-8.	Hypothetical grid layout with composite sampling locations.....	5-7
6-1.	Proposed site layout.....	6-9
6-2.	Schematic on excavation.....	6-10
6-3.	General excavation work flow.....	6-11
6-4.	Safe to Operate Task.....	6-12

6-5.	Cylinder inspection log	6-16
6-6.	Examples of several valve configurations.....	6-18
7-1.	Cylinder sampling and treatment flow chart.....	7-2
7-2.	Schematic of the VSS.....	7-3
7-3.	Photograph of CRV.....	7-4
7-4.	Schematic of CRV.....	7-4
7-5.	Hypothetical sampling grid.....	7-10
7-6.	Backfilling operations.....	7-11
8-1.	Example data sheet.....	8-3

TABLES

3-1.	Pre-removal data quality objectives for OU 3-13 Group 6 (CPP-84 and CPP-94).	3-5
3-2.	Post-removal data quality objectives for OU 3-13 Group 6 (CPP-84 and CPP-94).....	3-6
4-1.	Group 6, Buried Gas Cylinders, ARARs.	4-5
6-1.	Summary of major Group 5 activities, future reports, and primary enforceable milestone....	6-3
7-1.	Specific calibration and operation data.	7-5
7-2.	Treatment methods for non-anticipated compressed gases. (<i>Source: DLAR 4145.25, 1/90</i>). .	7-8

ACRONYMS

ACM	asbestos-containing material
ALARA	as low as reasonably achievable
ARARs	applicable or relevant and appropriate requirements
ARDC	Administrative Records and Document Control
ASA	auditable safety analysis
BFB	bromofluorobenzene
BBWI	Bechtel BWXT Idaho, LLC
CC	construction coordinator
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFA	Central Facilities Area
CFR	Code of Federal Regulations
CGA	Compressed Gas Association
COC	contaminants of concern
COPC	contaminants of potential concern
CPP	Chemical Processing Plant
CRV	cylinder recovery vessel
CRZ	contamination reduction zone
D&D	decontamination and decommissioning
DOE	U.S. Department of Energy
DOE-ID	U.S. Department of Energy Idaho Operations Office
DOT	U.S. Department of Transportation
DQOs	data quality objectives

EDF	engineering design file
EPA	U.S. Environmental Protection Agency
ER	environmental restoration
ERC	Earth Resources Corporation
ERP	ER Program
ERP	Emergency Response Plan
ES&H	environment, safety, and health
ES&H/QA	environment, safety and health/quality assurance
EZ	exclusion zone
FFA/CO	Federal Facility Agreement and Consent Order
FTIR	Fourier transform infrared spectrometer
FTL	field team leader
HASP	health and safety plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HF	hydrofluoric acid
HSO	health and safety officer
ICDF	INEEL CERCLA Disposal Facility
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Environmental Quality
IDHW	Idaho Department of Health and Welfare
IH	industrial hygienist
INEEL	Idaho National Engineering and Environmental Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
IPMP	implementing project management plan
ISO	International Standards Organization
JSS	job safety supervisor

LDR	land disposal restrictions
LEL	lower explosive limit
MCP	management control procedure
MS	mass spectrometer
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NPL	National Priorities List
OMP	Occupational Medical Program
OSHA	Occupational Safety and Health Administration
OU	operable unit
PID	photoionization detector
PM	project manager
POC	point of contact
POD	plan of the day
PPE	personal protective equipment
PRD	program requirements directives
PSQ	principal study questions
QAPjP	quality assurance project plan
RA	remedial action
RadCon	radiological control personnel
RAO	remedial action objective
RBC	risk-based concentration
RCRA	Resource Conservation and Recovery Act
RCT	radiological control technician
RD/RA	remedial design/remedial action

RE	radiological engineer
RG	remediation goals
RI/FS	remedial investigation/feasibility study
RBC	risk-based concentration
ROD	Record of Decision
RRWAC	reusable property, recyclable materials, and waste acceptance criteria
SC	safety coordinator
SE	safety engineer
SFE-20	storage facility exterior – tank 20
SH&QA	safety, health, and quality assurance
SMO	Sample Management Office
SO ₂	sulfur dioxide
SOW	statement of work
SRPA	Snake River Plain Aquifer
SZ	support zone
TBC	to be considered
TSDF	treatment, storage, and disposal facility
VOC	volatile organic compounds
VSS	valve sampling station
WAC	waste acceptance criteria
WAG	waste area group
WGS	Waste Generator Services
WMP	waste management plan